TECHNICAL STANDARD OPERATING PROCEDURE

494295

Date: July 22, 1999 (Rev. # 0)

SOP No. ISSI-VBI70-05

Title: DATA ENTRY

APPROVALS:

Author ISSI Consulting Group, Inc. Date July 22, 1999

SYNOPSIS: Protocol for entering field data sheets, results of laboratory analysis and related field sampling documentation into the project database.

Received by QA Unit:

REVIEWS:

TEAM MEMBER	SIGNATURE/TITLE	DATE
USEPA Region 8	RPM	8/5/99
ISSI Consulting Group, Inc.	FQAC For Doug Weinel	8.5.99

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to provide a standard method for entering field observations and results of laboratory analysis into the project database. Sources of these data include field data sheets, laboratory preparation logsheets, laboratory analytical results, and sample chain-of-custody forms generated during execution of the VBI70 Phase III site investigation. This protocol will be implemented by employees of USEPA Region 8 or contractors and subcontractors supporting Region 8 projects and tasks.

2.0 RESPONSIBILITIES

Individual and organizational responsibilities for data management personnel are described in the Data Management Plan.

The Field Activities Database Manager is responsible for overseeing the accurate and complete population and maintenance of the computerized database used to electronically store and process data obtained during field collection activities. The Field Activities Database Manager is responsible for verification of electronic data entry and maintenance of hard copy forms and logbooks. The Field Activities Database Manager is also responsible for implementation of the electronic database and document security.

Technical difficulties encountered or questions regarding the operation of database applications software are directed to the Project Database Manager. It is also the responsibility of the Project Database Manager or designee to schedule and perform installation and training for the project data entry prior to the initiation of field activities. Subsequent installation, upgrades and training may be necessary to address future project requirements and system enhancements.

It is the responsibility of the Field Activities Database Manager to identify any deviations from the SOP that may be required and to obtain approval for these deviations from the USEPA Region 8 Remedial Project Manger or the USEPA Technical Contact for Data Management/GIS prior to initiation of any data entry activities that are not in accord with this SOP.

3.0 DATABASE MANAGEMENT SYSTEM

3.1 Overview

A client-server database system is utilized for the management of Phase III data. The project database is stored and maintained on an MS SQL Server database system (server) located in the ISSI Denver office. Wide area network access to the project database is provided via TCP/IP communications (Internet). Data entry and reporting are performed using a custom MS Access interface (client) developed by ISSI and tailored specifically for the Phase III investigation. A detailed overview of the project database is presented in the Data Management Plan.

3.2 System Requirements

Software:	MS Access 97 SQL Server Client Software (ISSI Provided)
Operating System(s):	MS Windows 95 / MS Windows 98 / MS Windows NT
Hardware Requirements:	Pentium Grade PC 16MB Random Access Memory (Minimum RAM) Super VGA video resolution (800 x 600) 50MB Hard Disk Space
Internet Communications:	Internet Service Provider (ISP) 56kb or faster communications rate

Table 1 – System Requirements

3.3 Installation

The Project Database Manager will coordinate with the Field Activities Database Manager to schedule installation and remote site testing of the data entry and reporting interface. Installation and testing of the database client interface will be performed by the Project Database Manager or designee prior to initiation of field sampling and data collection activities.

3.4 Training

The Project Database Manager will coordinate with the Field Activities Database Manager to schedule training for data management personnel. Training will be performed prior to initiation of field sampling and data collection activities.

4.0 DATA ENTRY PROTOCOL

4.1 Overview

This protocol is to be used for entering data from field data collection sheets, laboratory preparation logsheets, results of laboratory analysis, and information contained on the chain-of-custody form into the project database. Specifically, this SOP addresses entering data from the following data sources:

- Surface Soil Data Sheets
- Alleyway Soil Data Sheets
- Indoor Dust Data Sheets
- Field Sample Preparation Logbook Sheets

Additional data may be entered from the hardbound notebooks maintained by the field sampling crews.

At the completion of each day's sample collection activities, the field data sheets are screened for legibility and completeness by the Field Project Leader or designate. Following verification the field forms and copies of the associated chain-of-custody forms are forwarded to the appropriate Field Activities Database Manager for entry into the project database. The Data Entry Clerk enters the information contained on the forms into the project database and generates a hard copy report of the newly entered data. The hard copy report is then verified for accuracy in accordance with the protocol described in Section 5.8 of the Data Management Plan. Data entry verification reports are stored as described in Section 5.9 of the Data Management Plan.

Results of laboratory analysis may be imported electronically into the project database, or alternatively, manually entered from hard copy laboratory reports. Analytical results should be transferred or entered as soon as results are available. Electronically imported data records are verified for accuracy in accordance with Section 5.8 of the Data Management Plan.

4.2 SQL Server Login

The database client interface is initiated by double clicking on the VBI70 Database icon. The user is prompted for a SQL Server Login ID and password. Login IDs and passwords for data management personnel will be provided on request by the Project Database Manager.

4.3 Menu Operation

A menu system is provided to assist users in navigating through the data entry and reporting interface (Figure 1). Menu items that reference sub-menus are denoted with a right-arrow symbol (=>).

Data entry screens are accessed by selecting the "Data Maintenance" menu option from the Main Menu. To navigate the menu, use the up and down arrow keys to highlight the menu choice and press the <Enter> key, or position and click the mouse pointer over the menu selection.

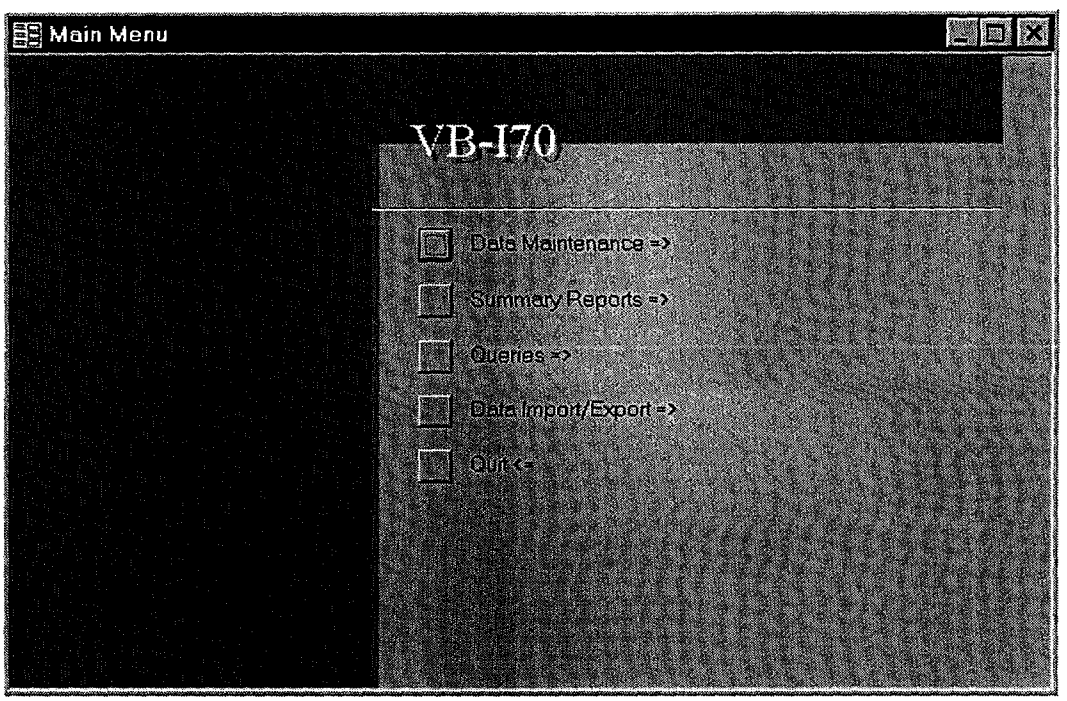

Figure 1 – Main Menu

4.4 Entering Field Data Sheets

The VBI70 database interface utilizes standard MS Access conventions for entering, finding, filtering, and viewing data. Please refer to the MS Access software documentation for a complete reference of keyboard shortcuts and application functionality.

Data entry screens are arranged to prompt for information in the same order as the information is recorded on the field data sheets. A typical data entry screen (Property Surface Soil Samples) is presented in Figure 2.

Drop-down Fields

Certain data entry fields are restricted to a valid list of values. These fields are identified by a small down-arrow located at the right hand side of the data field. To enter a valid value in one of the drop-down fields, enter the appropriate code and then press the <Tab> key to move the cursor to the next field. To display a full list of valid values, mouse click on the small down-arrow located at the right end of the drop-down field.

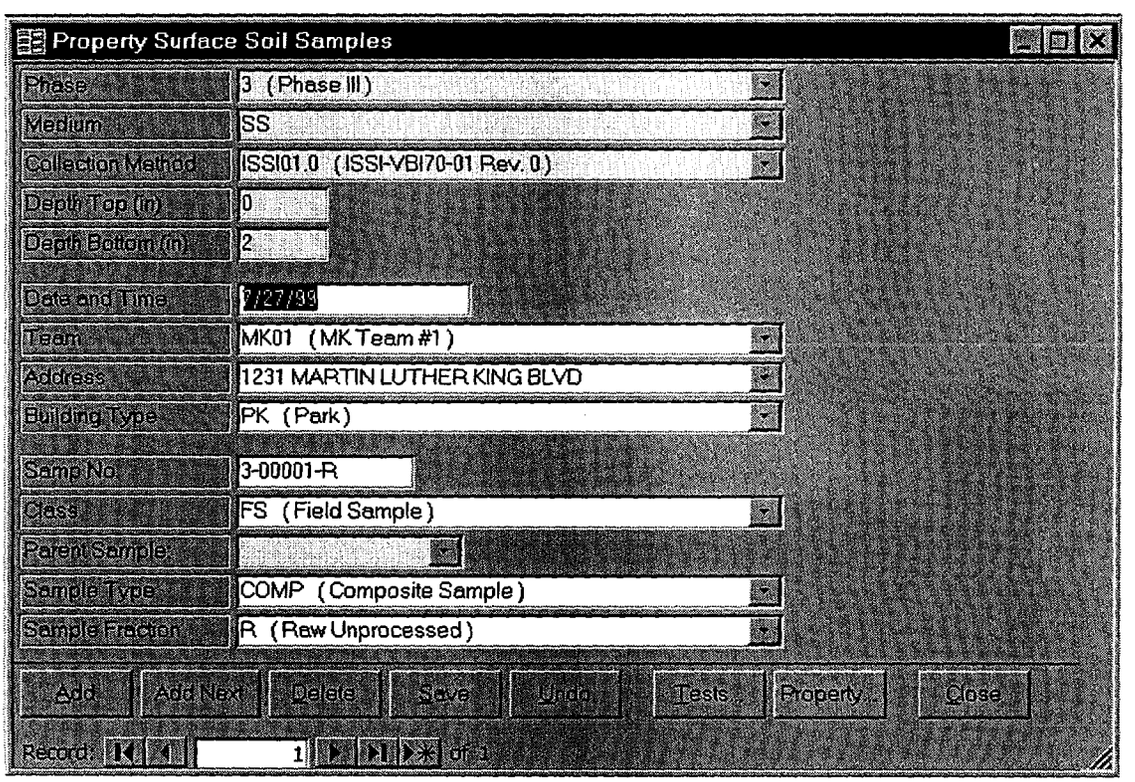

Figure 2 – Surface Soil Data Entry Screen

For example: to enter a "composite" sample type, type the code "CP" in the sample type field and press enter, or select "Composite" from the drop-down list. After entering a valid code, both the code and code description are displayed in the entry field for clarity.

Fields with a light gray background appearance are "Read Only" fields, meaning that the data displayed in the field cannot be changed.

The footer or bottom-most section of the form contains a set of command buttons. The following standard conventions apply to the Surface Soil, Alleyway Soil and Indoor Dust data entry screen command buttons:

[Add] - Appends a new sample.

[Add Next] - The database is organized with one data record for each sample. Surface Soil and Alleyway data sheets are designed to record more than one sample per data sheet. The [Add Next] command button is provided as a convenient way to carry over common sample information to the next data record. The cursor is then positioned on the Sample Number field of the new data record for entering the next sample number of the set.

[Delete] - Deletes the current sample record. Sample records cannot be deleted if Test or Laboratory Results information exists for the sample.

[Save] -Saves changes to the data record. Changes are automatically saved when a new record is added.

[Undo] -If changes haven't been saved, the [Undo] command button will restore the data entry fields to their initial state.

[Tests...] - Launches laboratory data entry screens. Entering laboratory information is described in following sections.

[Close] - Exits the data entry form and returns control to the menu system.

4.5 Valid Value Reference Tables

The valid value reference, or "lookup" tables may be accessed from the Main Menu by selecting "Data Maintenance =>", "Lookup Tables =>" and then either "Field Data Lookup Tables =>" or "Laboratory Data Lookup Tables". Certain lookup tables may only be accessed for **read-only** purposes. Additions or changes to the read-only valid

values may be requested by submitting a Data Amendment/Correction Form to the Data Services Manager as described in Section 5.8 of the Data Management Plan.

4.6 Entry of Surface Soil Data Sheets

From the Main Menu, select "Data Maintenance =>", "Property Sampling =>", "Add/Edit Surface Soil Samples".

The following information is entered from the Surface Soil Data Sheet for each sample collected:

Field Name	Data Entry Instructions
Phase	Defaults to code "3", Phase III Sampling
Medium	Defaults to code "SS", Surface Soil Sampling
Sample Collection Method	Defaults to "ISSI-VBI70-02 Rev. 1"
Depth Top (in)	Defaults to 0"
Depth Bottom (in)	Defaults to 2"
Sample Date and Time	Enter the Sampling Date. Sample Time is optional. Entry Format: MM/DD/YY 24:00
Sample Team ID	Valid value list
Address	Valid value list
Building Type	Valid value list
Sample Number	Enter the Sample Number
Class	Defaults to "FS" for yard soil samples
Parent Sample	Not required for Class "FS". Indicates the sample number associated with a duplicate field QC sample.
Sample Type	Defaults to "COMP" for composite samples
Sample Fraction	Defaults to "R" for raw samples

The Surface Soil Sample data entry screen has an additional command button labeled [Property...]. This button calls up the Property Access Agreement record for the selected property address. The purpose of this button is to record answers to the following questions posed on the Surface Soil Data Sheet:

- Is there a garden present?
- Is the garden currently in use?
- Has the address been confirmed by the resident?
- Is the resident willing to allow further sampling?

After completing the entry of all sample information, select the [Tests...] command button. Enter the requested analyses as described in the following section.

Select the [Add Next] command button to carry over information to the next sample collected at the same address, or select the [Add] command button to enter data for a new property address. Select the [Close] button to return to the menu system.

4.7 Entry of Tests (Required Analysis) Information

Data entry screens for samples of each medium include a command button to access the analytical requests (tests) and analytical results information. Analytical requests are listed for each sample on the sample chain-of-custody form. Select the [Tests...] command button to enter analytical requests. The data entry screen for entering laboratory analyses and results information is presented in Figure 3.

Create one entry for each laboratory analysis required as indicated on the sample chain-of-custody form. For example, enter test "XRF-MK" to select the "As and Pb by XRF" analytical request.

For each laboratory analysis required, enter the chain-of-custody ID and select the appropriate laboratory ID.

All other information will be entered and provided by the laboratory performing the analysis. Select the [Close] button to save the information and return to sample data entry screen.

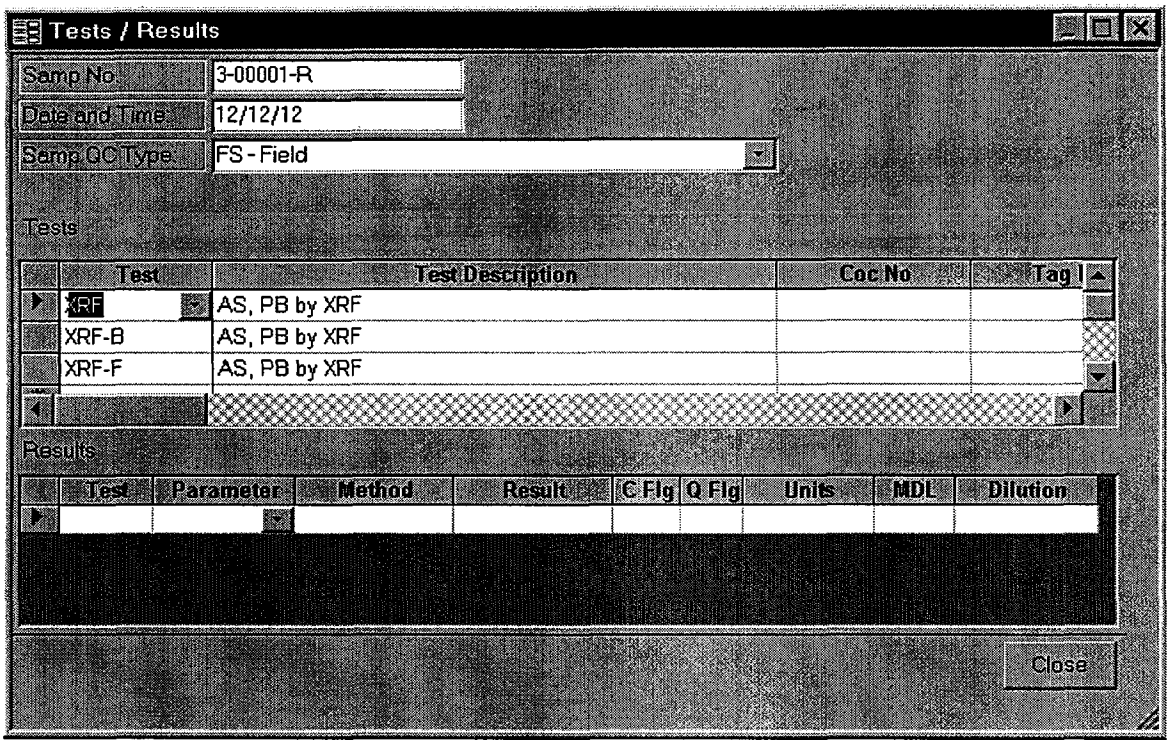

Figure 3 – Laboratory and Results Entry Screen

4.8 Entry of Alleyway Soil Data Sheets

From the Main Menu, select "Data Maintenance =>", "Alleyway Sampling =>", "Add/Edit Alleyway Soil Samples".

The following information is entered from the Alleyway Soil Data Sheet for each sample collected:

Field Name	Data Entry Instructions
Phase	Defaults to code "3", Phase III Sampling
Medium	Defaults to code "AW", Alleyway Soil Sample
Sample Date and Time	Enter the sampling date. Sample time is optional.
Depth Top (in)	Defaults to 0"
Depth Bottom (in)	Defaults to 2"
Alleyway ID	Valid value list. Note: Alleyway IDs and Map Positions will be assigned in the mapping process.
Sample Collection Method	Defaults to "ISSI-VBI70-03 Rev. 0"

Sample Team ID	Valid value list
Map Position	Enter the Map Position as indicated on the data sheet
Sample Number	Enter the Sample Number as indicated
Class	Enter the Sample Class, "FS" for Routine Field Samples or "FD" for Field Duplicates
Parent Sample	Enter the Original Sample Number for Class "FD", or Field Duplicate samples. Not required for Class "FS" samples
Sample Type	Defaults to "GRAB" for grab samples
Sample Fraction	Defaults to "R" for raw samples

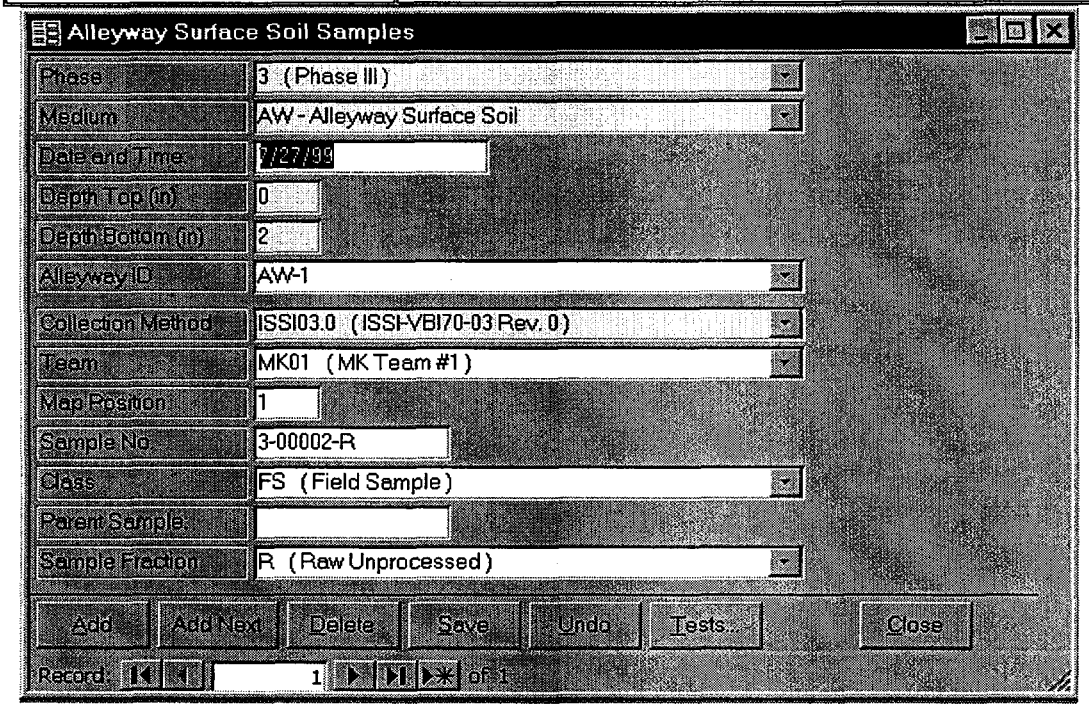

Figure 4 – Alleyway Surface Soil Sampling

Select the [Tests...] command button to enter required analysis information as described in Section 4.7.

Select the [Add Next] command button to carry over information to the next sample collected at the alleyway, or select the [Add] command button to enter data for a new alleyway location. Select the [Close] button to return to the menu system.

4.9 Entry of Indoor Dust Data Sheets

From the Main Menu, select "Data Maintenance =>", "Property Sampling =>", "Add/Edit Indoor Dust Samples". The data entry screen for indoor dust sampling is presented in Figure 5.

The following information is entered from the Indoor Dust Data Sheet for each sample collected:

Field Name	Data Entry Instructions
Phase	Defaults to code "3", Phase III Sampling
Medium	Defaults to code "HD", Household Dust Sampling
Sample Collection Method	Defaults to "ISSI-VBI70-04 Rev. 0"
Sample Date and Time	Enter the Sampling Date. Sample Time is optional. Entry Format: MM/DD/YY 24:00
Sample Team ID	Valid value list
Address	Valid value list
Sample Number	Enter the Sample Number as indicated
Class	"FS" for Field Sample or "EB" for Equipment Blank
Parent Sample	Not required for Class "FS". Indicates the sample number associated with a duplicate field QC sample.
Sample Type	Defaults to "COMP" for composite samples.

For each template location, enter the Living Area Code, Surface Type Code and any notes as indicated on the Indoor Dust field data sheet.

Select the [Tests...] command button to enter required analysis information as described in Section 4.7.

Select the [Close] button to return to the menu system.

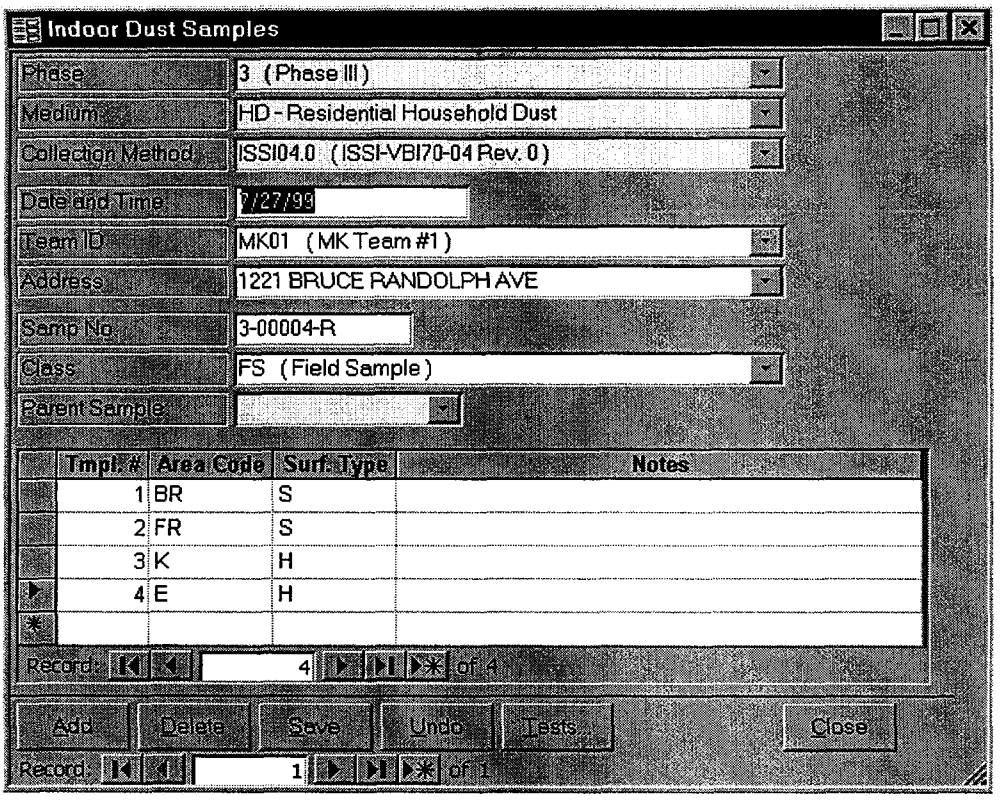

Figure 5 – Indoor Dust Data Entry Screen

4.10 Entry of Field Sample Preparation Logbook Sheets

The procedure for entering surface soil samples listed on the Field Sample Preparation Logbook Sheet is similar to that of the Surface Soil and Alleyway Soil data sheets. The samples listed on this log will all have a sample number suffix of either "-B" or "-F", representing the "Bulk" and "Fine" fraction of the "Raw" or "-R" sample. This procedure requires that the raw (-R) sample information be entered from either the Surface Soil or Alleyway Soil field data sheets **before** the Bulk or Fine fraction samples are entered from the Field Sample Preparation Logbook sheet.

The data entry process begins by finding the associated "-R" sample in the database. Enter the Surface Soil Samples data entry screen by selecting "Data Maintenance =>", "Property Sampling =>", "Add/Edit Surface Soil Samples" from the Main Menu.

To find the raw sample in the database, position the cursor in the "Sample No." field and press <Ctrl-F>, or click on the binoculars icon on the tool bar at the top of the screen.

Check that the find options are set to search all records, to match any part of the field and to search only the current field (Figure 6). Enter the raw sample number in the Find What field; i.e.: 3-00001-R, and then click on the "Find First" command button to retrieve the raw sample information. If the sample is found, select the "Add Next" command button to carry over the raw sample information to the new "Bulk" or "Fine" sample entry. If the sample is not found, look for the sample using the Alleyway Soil Sample data entry screen.

Click on the "Tests..." command button to enter the requested analysis information from the laboratory prepared chain-of-custody. The procedure for entering requested analysis information is described in Section 4.7.

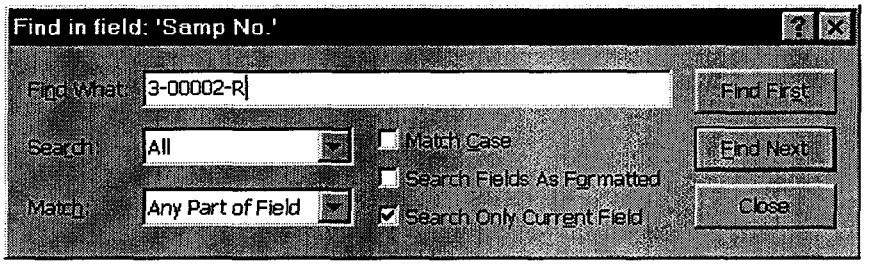

Figure 6